

Remembering KEY terminology about Data management.

When you survey every single person in the population that you are wondering about, that is called a

census

This is an accurate / inaccurate method of getting data.

~~completely accurate~~

The problem with this method is that it

- time
- ~~cost~~

A cheaper and faster way is to survey a *sample*

The problem with this method is that
less accurate

- A survey is BIASED if the people chosen to answer do not accurately represent the population.
ex. If the population is 50% boys and 50% girls, a sample that asks 80% girls and 20% boys is biased to favour the opinions of girls. the percentages do not match the population.
This has to do with who was asked, not what they said.
- A survey is RELIABLE if you could duplicate the results with another survey. This is one of those "it depends who you ask" problems. Are animal rights important? I asked 100 veterinarians. Not reliable? Fine, I'll ask 100 hunters. Oh that's not reliable either? I'll ask 100 random people? Seems more RELIABLE.
You can't ask a group that will likely tend to one side or the other.
- A survey is VALID if the results represent the population. This means that If I asked 10 people if Mr Court is a good teacher, and 10% said yes (thank you 1 person who said yes), would I still get around 5% if I asked everybody?

This is SUPER important when you are choosing a question, and when you are choosing who to ask.

Tell me if the following are biased or reliable:

- a) I want to change the food that they sell at the school. I survey all the teachers to find out what we should offer.
- b) RUNESCAPE's website does a survey to find out what are the favourite activities of teenagers.
- c) BET does a survey during 106 and park to find out which musical artist teenagers like best.

Limeridge Mall wants to find out if they should open an arcade in the mall.
How might the survey results be affected in each situation? EXPLAIN

- a) a survey of all shoppers is taken on a weekday morning
- b) a survey of all shoppers is taken on a saturday afternoon
- c) a survey of teenagers is taken

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1. Census or Sample? Explain.

- a) to find the favourite TV show of Grade 8 students in the school, fifteen of the 40 grade 8 students in the school are surveyed.
- b) To find the favourite video game of Ontario 13-year-olds, all 13-year-old students in Ontario are surveyed.
- c) To find out if customers of a chain of coffee shops are happy with the service, some of the customers in every shop were surveyed

For each survey, state if the sample is biased or reliable.

Justify your answer.

a) To find out if the arena should offer more public skating times, a survey is posted on a bulletin board at the arena and left for patrons to complete and return.

b) to find out the favourite breakfast of Grades 7 and 8 students, a survey of 300 randomly -selected Grades 7 and 8 students was conducted.

c) TO find out about the exercise habits of Canadian teenagers, a fitness magazine asks its readers to send in information about the exercise habits of teenagers.

d) To find out if the soccer league should buy new uniforms for the players, 20 parents of the students in the soccer league were surveyed.

For each situation, explain why data are collected from a sample and not a census.

- a) To find the mean cost of hockey equipment for teenagers in Canada
- b) To find the number of Canadian families with a cell phone
- c) To find the number of hours an AAA battery will last in a calculator

For each situation below

a) Might the sampling method provide biased data?

b) If yes, how can the sampling method be changed so that the data collected represents the population

1) The student council wants to know if the students will attend another school dance this month
The student council members survey all their friends to find out

2) A sportswear store conducts a survey to find the most popular brands of athletic shoes
The first 300 people in the store who are wearing athletic shoes are surveyed.

3) To find out the number of hours per week that people in her city spend exercising, a newspaper journalist interviews all the clients at 5 different fitness centres in the city.

4) A company is hired to find out who Canadians think will win the next Grey Cup. To collect the data, the company puts an advertisement in the sports section of all major newspapers asking people to vote for their choice.